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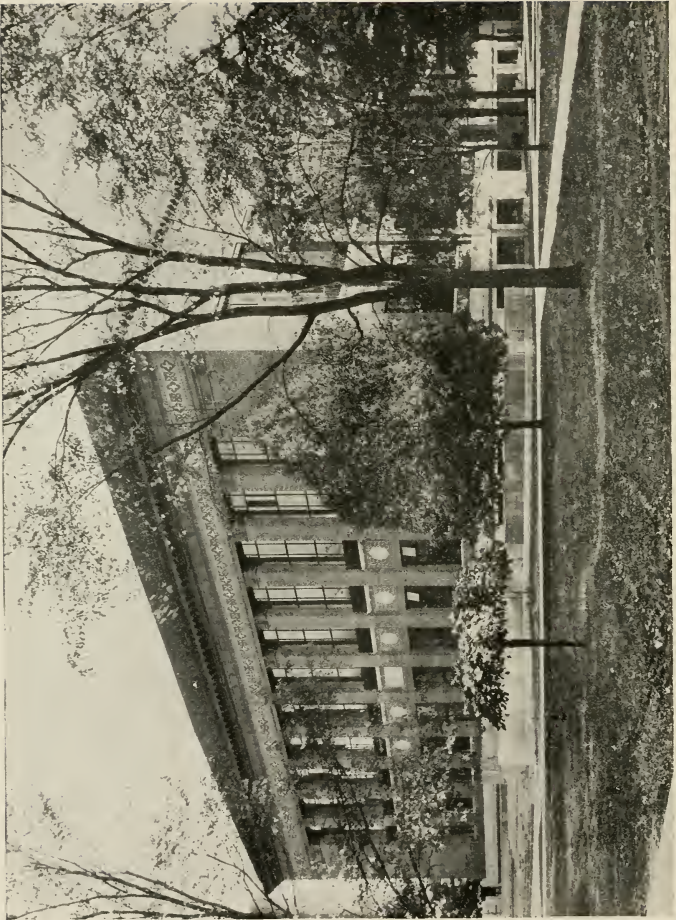
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THE LIBRARY BUILDING
WITH THE ADDRESSES
AT THE
Dedication, January Seventh
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GENERAL LIBRARY

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LIBRARY SCHOOL LIBRARY

THE NEW LIBRARY BUILDING*

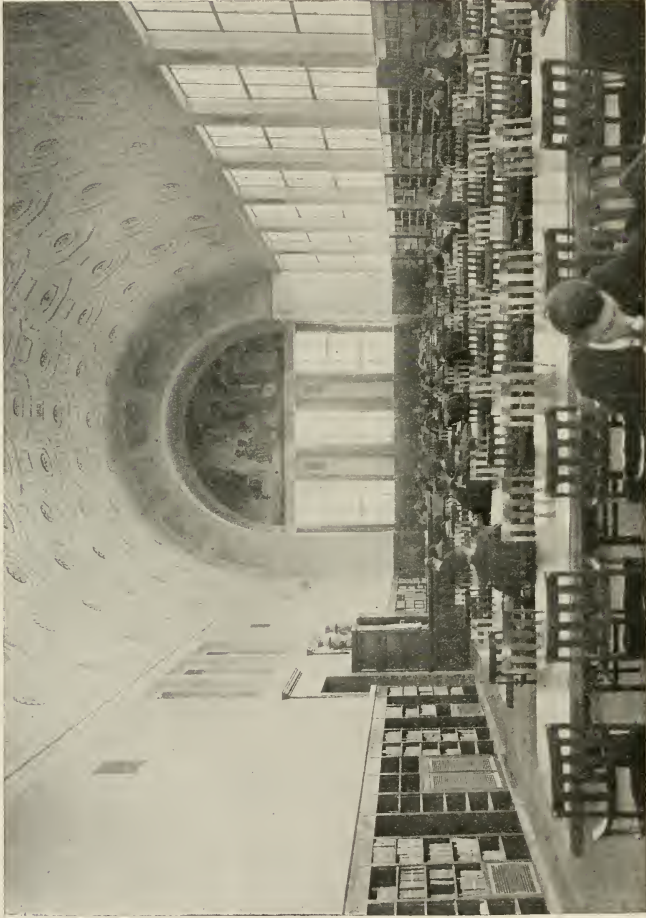
BY WILLIAM WARNER BISHOP, LIBRARIAN

The University of Michigan opened its new library building on January seventh. This structure was built under two special appropriations made by the State Legislature, the first of \$350,000 granted in 1915, and a second of \$200,000, from the Legislature of 1919. In addition other funds to the amount of \$65,000 have been applied by the Regents of the University, making the total cost of the building and equipment \$615,000. The architect of the new structure is Albert Kahn of Detroit, the designer of the Hill Auditorium and the Natural Science Building at Ann Arbor, both models of their kind, and of numerous banks, office and factory buildings in Detroit and elsewhere. To his ingenuity and skill the library building owes much more than can easily be told, and his spirit of co-operation with the librarians and the university has left nothing to be desired. To his great experience in factory construction is unquestionably to be ascribed the unusual size of the building in comparison with its cost; the structure being completed at about 25c per cubic foot, and that in an era of high prices exceeding all previous records in the building trades.

The new building is erected on the site of the old library, and incorporates the old book-stack which was fireproof. The decision to use the old stack building—which would have cost quite \$150,000 to reproduce, to say nothing of the expense of temporary stacks, and the moving of 300,000 volumes—made the architect's problem exceedingly difficult. It was solved by erecting two stack wings at right angles to the old stack, and conforming to its varying levels. The northeast corner of the building was fixed by a thoroughfare running diagonally across the Campus, which could not be cut into by the structure. The resulting building is 177 feet in breadth, 200 feet in depth, and four stories high, with two light courts on either side of the old book stack. This stack is five stack levels high—the new ones have eight floors, and are built so that they may be extended to fifteen, bridging the old stack by girders carried on specially designed columns of re-inforced concrete. A glance at the plans shows that books are housed in the rear and center, reading-rooms are in front, and special reading rooms and work rooms are on the sides. The focal point is the juncture of the three stacks—and there the book-carrier is installed, delivering books to the main reading room and to the delivery corridor, both on the second floor.

The architect has endeavored to provide for the future needs of the university by making the reading rooms, delivery corridor and staff work rooms as large as possible, with definite provision for extension of the book storage facilities as the collections grow in size. Certain of the public rooms can also be diverted to other uses as the University increases, for example, the work of the Study Room on the first floor can easily be done later in a

* All but the last four paragraphs of this article are reprinted from the *Library Journal* for October, 1919.



THE MAIN READING ROOM, LOOKING WEST.
Showing one of the lunettes by Gari Melchers

recitation building, thus freeing space for an additional reading room. The Medical Reading Room on the second floor will be released for other uses when the Medical School secures a fireproof building and houses its library in it.

There are certain novel features in this new building at Michigan. Chief of these are the use of reinforced concrete construction and the unusual amount of light which that type of framework permits at a low cost. Of course reinforced concrete buildings are proof against fire originating in the structure, and in the case of this library there is no "conflagration hazard" from outside. Thus two absolute necessities of a modern library building, safety from fire and abundant light everywhere, are secured at a very slight expense as compared with the same results in a steel or masonry structure. The bookstacks are designed primarily as research work rooms rather than as store houses. There are wide spaces between centers (54 inches), admitting of free movement in the aisles. Every other floor is closed tightly, the staircases are enclosed with glass and steel, and there are doors at the head of the stairs. In this manner each pair of stack levels is treated as a single unit for ventilation and there is no rush of heated air to the upper stories of the stack. Exhaust flues are incorporated in the stack, while the air-ducts for the pressure system run in the columns on the outer wall of each stack building. Folios are kept in special over-size cases constructed of Sneed newspaper shelving enclosed with cast iron plates and tops. These cases separate the carrels from the aisles in a way to secure greater privacy to investigators using the carrels and at the same time furnish a very satisfactory solution of the problem of housing folios in the immediate neighborhood of the other books in the same class. No single feature of the new building is so highly commended in actual use as the provision of carrels for research workers. There are 102 tables in these separate compartments in the new stack. The same number can be provided later when the stacks are built in the west stack wing. The tables are large, with a fixed shelf at the back. The student using one has control of his window, of his heat, and of the light in his stall, and there is a comparative amount of privacy.

The disposition of the main spaces is evident from a glance at the floor plans. The basement is almost wholly given up to special uses, receiving room, bindery, machinery room, staff quarters, etc. The basement is very well lighted and is a comfortable place in which to work, as shown by the bindery's experience in a year's use. The first floor houses the Study Hall for undergraduate required reading near the entrance, thus saving much time to undergraduates and eliminating the crowding and discomfort attendant upon this service when performed in the same rooms with reference work. Differentiation of function has been, in fact, the key to the planning of the library. The staff quarters are in one large room on the east side of the building, light, airy and attractive. Provision is made for privacy for heads of departments by partitions of double-faced bookcases.

There should be no congestion and great flexibility of arrangement in a large office-workroom of this sort, as has been proven time and again in the newer office-buildings of large corporations. The ordering, classifying and cataloging are thus done on one floor under comfortable conditions. There is also a lecture room on this first floor, capable of seating about seventy-five students.

The second floor is the main service level. The approach is by double staircases of a very easy tread, and in addition there are elevators. The Delivery Corridor contains the card catalogs, the circulation desk, and a delivery counter. The book carrier delivers here as well as in the main Reading Room on the north side of the building. This is a very noble room,



THE STUDY ROOM ON THE FIRST FLOOR

170 feet long, 50 feet wide, and 50 feet high in the center of the barrel-vaulted ceiling. There are eleven huge windows (9 ft. wide by 19 ft. 6 in. high) on the north side, and three at each end. The rooms will seat about 300 readers, while more could be given chairs, if necessary. At either end over the large windows are paintings by Gari Melchers, the Arts of War and the Arts of Peace, painted in 1893 for the Manufactures Building at the Chicago World's Fair. The subjects are the same as his well-known paintings in the Library of Congress, but the treatment differs in details from those paintings. The evening illumination is by indirect radiation from reflectors concealed in the tops of the bookcases, located, it will be observed, where they can be cleaned easily and frequently. The Librarian's Office, the Medical Reading Room, and a Periodical Reading Room are likewise on the second floor.

The third and fourth floors are given over to graduate research and instruction. Four Graduate Reading Rooms for the use of students in the Graduate School are provided, and across the corridor are class rooms for the meeting of seminars. These reading rooms will each have about eight thousand volumes, and are to be open like the rest of the Library, fourteen hours daily.

The technical details of the building are most modern. All piping (steam, water, gas, electricity) is placed in vertical shafts; all wires are in conduits (mostly laid in concrete floors and columns); there are ample facilities for the inspection and repair of all plumbing and steam-fitting. Motors and fans are insulated on cork and felt. The vacuum cleaning machinery (always noisy) is located outside the building under the front steps. In general these, and many other ingenious devices making for comfort, ease and cheapness of operation, are due to the architect and to the care and skill of Professor John F. Shepard who has supervised the construction for the University.

There are seats for one thousand readers in the new structure, divided between reading and study rooms, seminars, and stacks. It will house one million volumes without extension, and nearly a million more with the extensions planned for. It can be added to without seriously injuring its appearance or interfering with its working plans. And it has been built during the war at a serious sacrifice on the part of the contractors without any deviation from the original designs or important change in specifications.

The task of furnishing and equipping the Library Building proved much more formidable than was expected, because of the great difficulty in obtaining materials and manufactured articles. This condition was universal throughout the country. It may be illustrated by the fact that electric light fixtures ordered in August, for delivery in October, were not delivered until late in December; and the entire consignment was not in place at the time of the Dedication. The carpenters and painters employed by the University have worked with great energy and interest at the task of building tables, chairs and other furniture, and, once they had the materials, turned out the work in prompt fashion.

The furnishings of the building are very interesting to librarians for their simplicity, their agreeable color, and their efficiency for their several purposes. The chairs in the Main Reading Room were designed for the comfort of persons sitting up and working at a table, and have proven very successful. The Periodical Room has been furnished with a series of cubby-holes, supplied with doors to keep out dust and to make the room present an orderly appearance. The effect is pleasing, and the convenience of persons using the room has been greatly aided by this device.

The lighting fixtures for the smaller reading rooms, designed by Professor John F. Shepard, give a maximum of direct, and a large amount of indirect light, without exposing the filament in the nitrogen bulbs to the eye of the reader. These have been successfully employed in all the rooms

less than twenty feet in height. The lighting of the Main Reading Room is done entirely by indirect and diffused light. There are no chandeliers, but the lights are carried in the tops of the bookcases. The effect is more that of daylight than of the ordinary evening illumination. It was supposed that table lights might be needed at the ends of the room, but they have proven unnecessary, the light in the great reading room being amply sufficient for reading in all parts of the room.

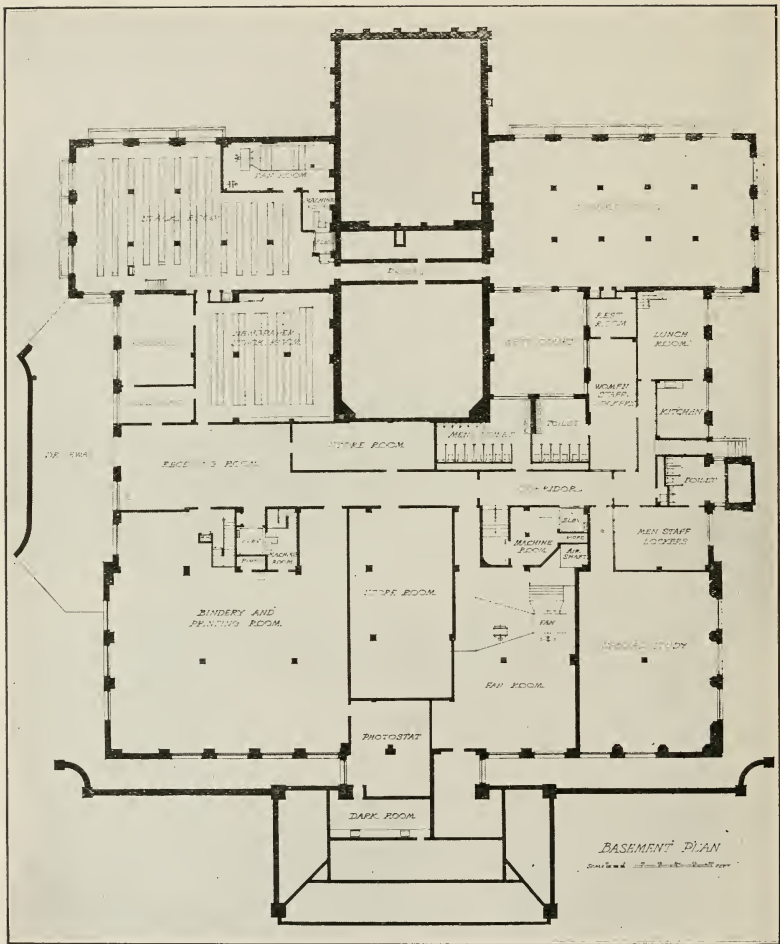
The artistic features of the building are perhaps worth noting, although they have been subordinated to considerations of utility in most cases. The admirable stained glass windows which were in the former reading room have been carefully preserved and placed over the desk on the south side of the Main Reading Room, where they make a note of color as the sun shines through them during the greater part of each day. The casts of the Parthenon frieze and of the famous Della Robbia choir, which were in the old reading room, have been placed in the Delivery Corridor and Study Hall, respectively. The walls of these two rooms have been tinted by the stippling process in such a manner as not to absorb light unduly and yet to give a pleasing effect in conjunction with the woodwork. One of the very successful features has been the exhibit cases in the front corridor, and the panels above them. The latter have been painted in the Pompeian style by Mr. Thomas di Lorenzo of New York, who has managed to harmonize his colors with the pink tinge of the marble in the hall. The result is to give a bit of warm color in the entrance, which has only north light. It is probable that arrangements can be made to secure for the Library some of the best of the University's collection of paintings, and perhaps other paintings not now owned by the University.



THE MALL

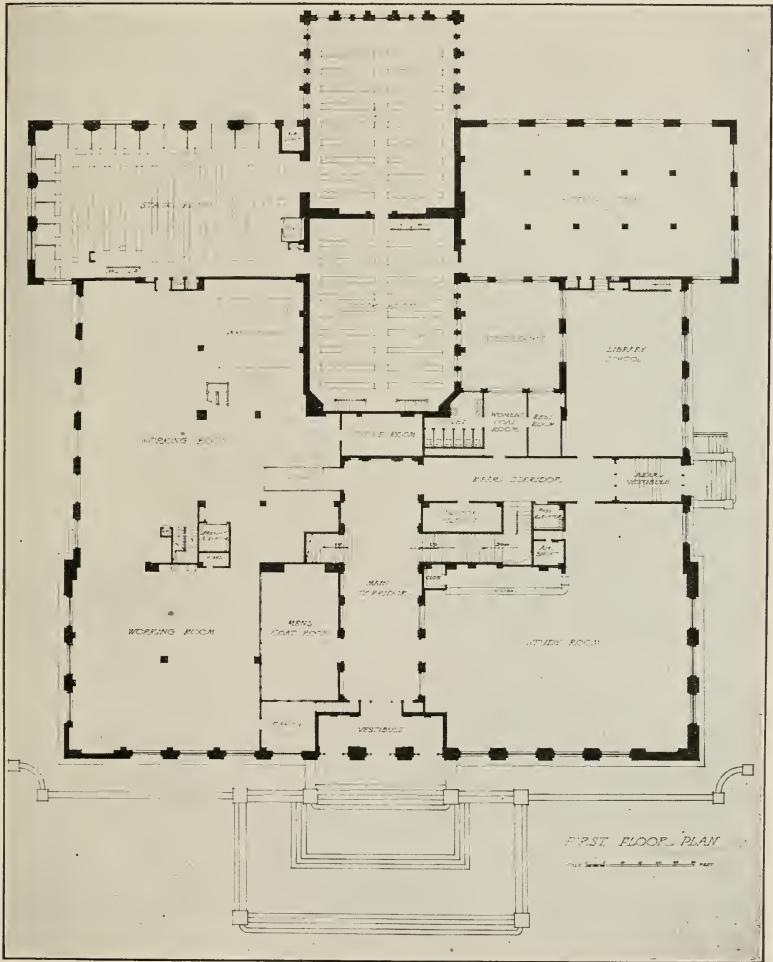
Between the Chemistry and Natural Science Buildings, with the Library in the background

FLOOR PLANS



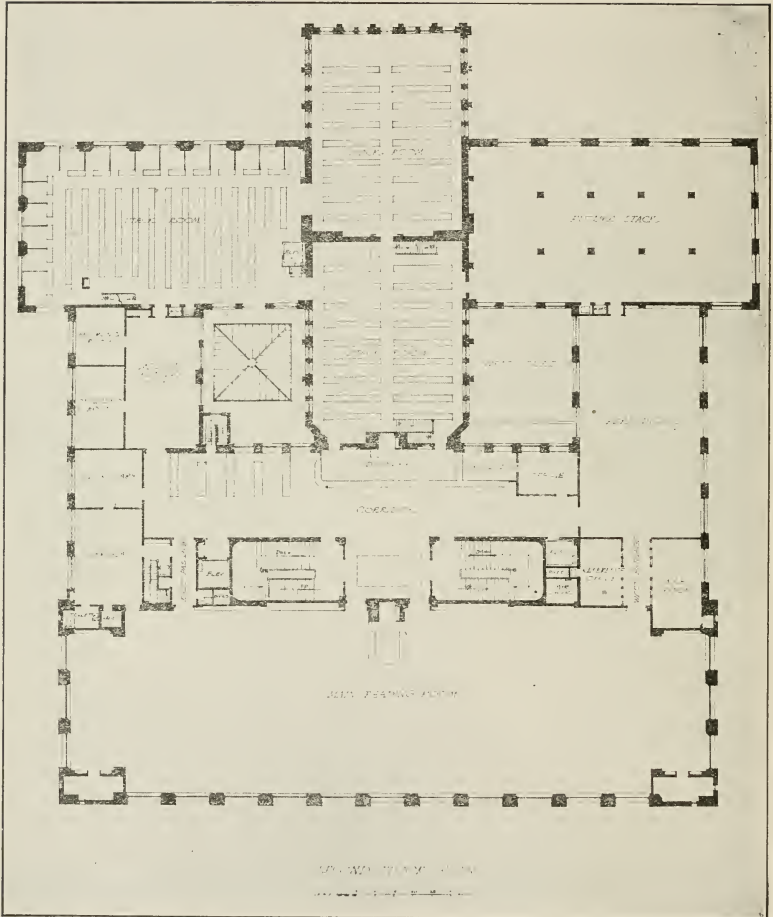
THE BASEMENT PLAN

Courtesy of the "Library Journal"

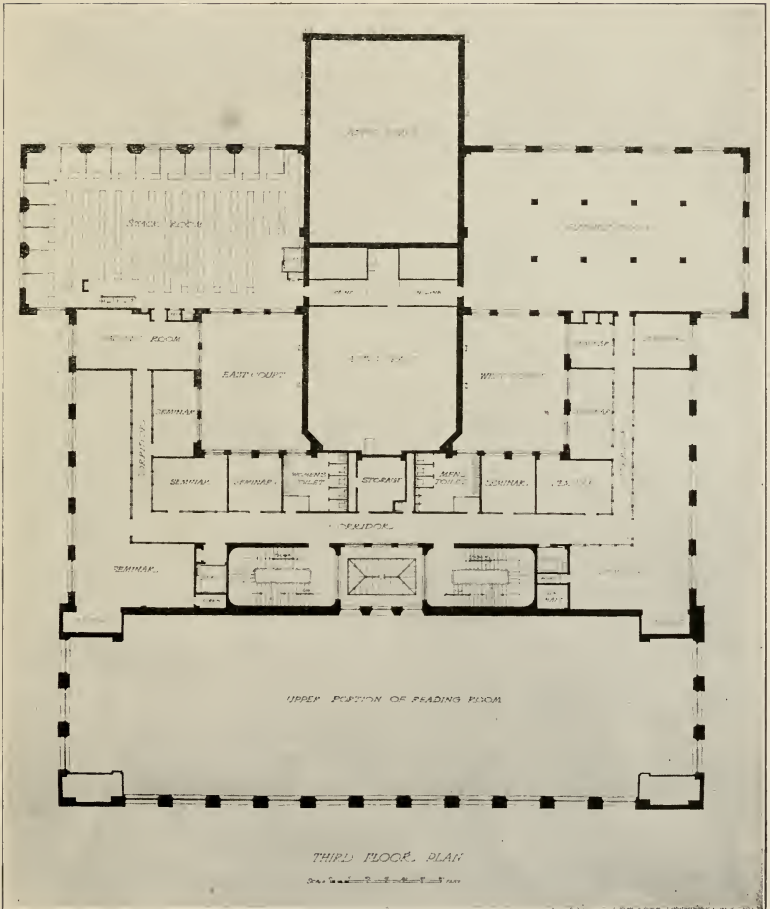


THE FIRST FLOOR PLAN.

Courtesy of the "Library Journal"



THE SECOND OR MAIN FLOOR PLAN Courtesy of the "Library Journal"



THE THIRD FLOOR PLAN

UNIVERSITY OF MICHIGAN

PROGRAM OF THE EXERCISES OF DEDICATION

UNIVERSITY OF MICHIGAN

DEDICATION OF THE NEW LIBRARY BUILDING
 January Seventh, Nineteen Hundred and Twenty
 HILL AUDITORIUM

PROGRAM

- Toccatà and Fugue, D Minor *Bach*
 Mr. Earl Vincent Moore
- The History of the New Library Building
 Regent William L. Clements*
- The Plans of the Building
 Mr. Albert Kahn, Architect
- Pilgrim Song *Tschaikowsky*
 Mr. William Wheeler
- Address: The Library, Democracy, and Research
 Mr. Richard Rogers Bowker
- America

*The Librarian of the University spoke in place of Regent Clements.

ADDRESSES

The opening of the new Library of the University of Michigan was formally celebrated by appropriate exercises in Hill Auditorium on the afternoon of January 7, 1920.

There were present more than three thousand persons who listened to addresses by the Librarian, Mr. William Warner Bishop, '92, who gave a short history of the Library Building in place of Regent William L. Clements, '82. (unfortunately prevented by illness from participating in the program), to the architect of the building, Mr. Albert Kahn of Detroit, and to Mr. R. R. Bowker of New York, the editor of the *Library Journal*. President Hutchins introduced the speakers.

THE HISTORY OF THE NEW LIBRARY BUILDING

By WILLIAM WARNER BISHOP, LIBRARIAN

The honor of this initial place on the program of the dedicatory exercises for our new library building comes to me because Regent William L. Clements was too ill to prepare and deliver the address assigned to him on the printed programs in your hands. It seemed peculiarly fitting that he, the Chairman of the Library Committee of the Regents, should have the opportunity to rehearse the successive steps in the completion of the task to which he has given so lavishly his strength and his best thought. My sole consolation for his absence today—absence from the program alone, I rejoice to say, for he is here beside me—my sole consolation is the opportunity thus given me to pay public tribute to his untiring interest in the University Library, to his unwearied efforts in the erection of the building which we dedicate today, to his sacrifice of time and personal comfort in its behalf, and to the wisdom and determination with which he has guided this enterprise to a successful end. No librarian and no architect could wish for more kindly, more sympathetic support, or for more searching and just scrutiny of projects and plans. Not the least of the many services which Regent Clements has rendered his Alma Mater is the carrying through to completion of the new library building.

To very many alumni it seemed a great pity, indeed almost a crying shame, that the old Library Building in which they had spent so many busily happy hours, should be torn down. And yet, though by no means an old structure—it was occupied in 1883—by 1914 conditions of work in it were well-nigh intolerable. The Reading Rooms were crowded and noisy, the staff rooms were so small that not only did desk touch desk, but people literally rubbed elbows, two at a single desk. Its book-stacks were so congested that the very windows were darkened by books, and many aisles were almost impassable. The case was literally desperate. Relief was imperative, if the work of the University was to go on. And yet, relief by any other means than a new structure was impossible. The book-stack would not bear additional stories above or below its actual level. The main structure was non-fireproof—highly inflammable indeed, as we discovered when

it was wrecked in 1917. The shape of the semi-circular reading room did not admit of addition. And finally, the building, especially the stack, could not be turned to any other useful purpose in a university already cramped for room in every direction. The only solution seemed—and was—a new structure on the site of the old one, a site in the center of the Campus, strategically located, pointed out by every consideration as the only one entirely desirable.

Various efforts were made by the Faculties and the Librarian to direct attention to the imperative need of a new structure. So bad had the conditions become that the Regents in their program submitted to the Legislature of 1915 included an item of \$350,000 for a new library building. This was not done without preliminary study. A committee of two professors, the



THE MAGAZINE ROOM

late Dean Carl Guthe and Professor I. N. Demmon, at the Regents' direction visited numerous universities to study their library buildings. The Library Committee of the Regents had sketches prepared which should at least outline the new structure. And so the plan and the appeal went to the Legislature of 1915, where it reposed peacefully until about the end of the session.

Many persons aided in securing the passage of the bill, Regents, alumni in the House and Senate, friends of higher education in this State—but special mention should be made of the efforts of the Honorable William F. Nank and the President of the University. Happily both are with us today. Mr. Nank, and President Hutchins, in the name of this audience, I thank you both!

It would ill become us on this occasion, because we note the successful efforts of a few to persuade the Legislature to action, to fail to honor with our earnest and sincere thanks the Legislature itself. This University has

not in my time been forced to plead its case before a hostile or indifferent legislative body. The people of the State of Michigan believe in the University of Michigan, and their representatives share and have shared in that belief and confidence. But any man who is at all conversant with the work of legislative bodies knows how vast is the amount, and how great the number of the appeals for appropriations. No legislature could possibly grant even a considerable fraction of the total requests for appropriations made on it. Therefore, the Legislature of 1915, which recognized the need for this new building, and that of 1919, which provided for its completion, deserve and have our profound gratitude and thanks. The University does not merely come and ask. It remembers and it gives thanks.

Buildings have a way of hanging fire, once money is voted for them. It takes a long time to see that plans are wisely drawn—and a long time to draw them. The Regents, soon after the vote by the Legislature,—in June, 1915, to be exact,—appointed Mr. Albert Kahn of Detroit as architect of the new library building, a choice so happy, and provocative of such admirable results as to need no comment from me. This building in which we meet, the Natural Science Building across the street, and the new Library, of themselves justify that selection. Mr. Kahn will speak about the plans for the building. I wish to take this opportunity to bear witness to his entire co-operation with the librarian and the other University officers, to the unrivalled skill which has given us so large and slightly a building at so small a cost, and to his unflinching good spirits and cheerfulness in the face of endless delays and difficulties.

With the architect, the faculty committee referred to before—now unhappily deprived of Dean Guthe's aid, and consisting of Professors Wenzley and Demmon and the present Librarian—had numerous conferences. They visited and studied numerous libraries. They found at once that the sum asked for and voted was smaller than it seemed. But on December first, 1915, after conferences with the faculties and Regents, the architect's sketches were approved by the Regents, and he was authorized to proceed to make drawings as a basis for bids for construction. With the detailed work on the drawings, a new and most important factor entered into the plans for the building. This was the appointment by the Regents of Professor John F. Shepard to represent the University in the planning and construction of the Library building. For four years Professor Shepard and the Librarian of the University have worked together on the Library building, first on its plans, later on details of construction, lastly on the furnishing and equipment. Professor Shepard's well-known skill in experimentation, his experience in constructing the Natural Science Building, his acquaintance with the architect's force, pointed him out as the logical man to do this work. But what devotion he has shown to it, what sacrifice of his own leisure and comfort, what even greater sacrifice of his time for work in his laboratory, none can know save perhaps Mrs. Shepard and the present speaker. The debt which the University Library owes to Dr. Shepard it is impossible to exaggerate. He has met emergencies with skill, difficulties with determination, drudgery with patience, and has even reached the Scriptural height of suffering fools gladly. I have but one regret in recalling the four years of

constant association; I am uncomfortably conscious of what precious hours he has freely taken from the pursuit of his own researches to make research in the library possible for others.

The original plans for the building provided for but one of the two stack wings. In March, 1916, the Regents voted to construct both wings, in order to provide reading rooms in the west wing during the construction of the building. That this decision was wise is unquestionable. It is difficult to see how the work of the Library could otherwise have been maintained during the past three years. In June of 1916 bids were submitted on the new structure and the contract finally let to the Selden-Breck Co. of St. Louis, Missouri. The contract for the book stack in the east wing went to the Snead and Co. Iron Works of Jersey City, N. J. The general contractors proceeded at once to the erection of the two stack wings. From the time they began in August, 1916, until the completion of the structure nearly three years later, their operations were beset with difficulties of all sorts. Delays in delivery, freight embargoes, shortage of labor, of steel, of timber, of coal, the war and the two drafts, increase in prices of all commodities, everything combined to make their labor slow and difficult. None the less they stuck to the job and finished the building—and that at a serious financial loss.

By June of 1917, the west stack wing was occupied and the work of the library moved from the old building. By the fall of that year the book-stack was finished, save for the two lower floors which temporarily housed the bindery. The removal of the library's work to the new structure was effected without closing down even for an hour, although it would be idle to affirm that it was accomplished without inconvenience to the student body. The temporary quarters in the west wing have housed the Library until the present week. Tomorrow they will be abandoned for the new reading rooms.

The summer of 1917, our first months of the World War, saw the wrecking of the old library structure. This proved a much more difficult task than had been expected, and required weeks for its completion. The felling of the old clock tower on a July morning that summer was a sight which all of the little band who rose early to witness it will always remember. Slowly the old building was removed bit by bit, with much noise and more dust for the long-suffering occupants of neighboring buildings. And before fall the noise of the concrete-mixer was again heard in the land. Then came the rains of the fall of 1917, and the unexampled cold of the winter of 1917-1918. Those were the days when our young men were going off to the camps, and only older laborers and skilled machanics were left behind. I well remember the devotion with which the workmen toiled in weather below zero to finish the basement. Fires had to be lighted to thaw out the ground in which drains were to be laid. But through it all the work went on until in the late spring of 1919 the general contractors turned over a completed structure to the University.

A structure completed—yes, but not a building for occupancy. A second legislature had appropriated \$200,000 to finish and equip the library. Nine months and more has the University's force of carpenters, painters and electricians worked at the equipment. Here, too, delays without end

have contrived to defer the actual use of the building. Today the third and fourth floors and most of the first floor are not ready for use—solely on account of the present abnormal state of the world's markets. Just one example: It took four months of correspondence to secure a single carload of quarter-sawed oak from which to build the tables in the Reading Room. Ten years ago a carload—yes, many of them—could have been had by telephoning any one of a score of firms within fifty miles of Ann Arbor. And this is typical of most of the work of building in war-time.

Mention of the University's force of workmen gives me an opportunity to say a word of recognition of their services and their devotion. All the painting and finishing, the electrical work (save a few fixtures), the plumbing and steam fitting, and much of the carpenter work, has been done by the University's own men working under the Superintendent of Buildings and Grounds. They have shown a pride in that work, and it has been well done. The Library staff has come to know them in the close association necessarily brought about by the conditions of the last three years. And we have come to respect and like them. We shall miss them when they go off to work on the hospital. And I, for one, am glad that so large a part of this new building has been done not by Ann Arbor folk alone, but by University employees.

May I take this occasion, also, to express our sense of the patience of the University community under most trying conditions during those years of building? First there was noise, then dust, then new and ugly quarters, temporary reading rooms, necessarily slow and imperfect service, in short, all the discomforts and inconvenience of living in a house which was being torn down while a new house was being built on the same site. It has not been pleasant or easy, and this fall, when the University has been so crowded, the conditions have at times been seriously detrimental to efficient use of the plant. But everybody has made the best of a trying situation. The student body has been patient—very patient, and I trust it need exercise that patience but a few weeks longer. We shall not be wholly ready for rapid service for some time. But each day will see some definite step toward that end.

What does this new building mean to the University? Of course, an ample, quiet, comfortable place in which to read and study. But much more. It is an outward and visible expression of two things of the spirit which go far toward making true scholarship: service and learning. Here are afforded the means in comfortable guise of meeting face to face the great master-minds of the race. Here lie—in fair guise and array, ready for instant use—the great mass of facts which the human mind has discovered for and about itself and its world. Here are the librarians, ready, so far as their imperfect skill may permit, to aid generations of students to making the contact between themselves and recorded thought. This is the great purpose, the only reason for existence, of the University Library. Its building is but the outward means to the housing of books, to the reading of books, to the end that young men and women may acquire learning, and, perhaps, wisdom.

THE PLANS OF THE NEW BUILDING

BY ALBERT KAHN, ARCHITECT

As architect of the new Library about to be dedicated, I am asked to say a few words about the structure, the problems involved and the solution sought. In a nut-shell, the problem was this—to get as much building for as little money as possible and to that end all efforts were bent. In connection with this, I am glad to have the opportunity of expressing to you



THE DELIVERY DESK IN THE NEW LIBRARY

my sincere admiration for the splendid body of men entrusted with the direction of this important institution of learning. I refer not only to your President and other officers of the University, but particularly to your honorable Board of Regents. No group of men was ever more conscious of its duty to the commonwealth, more conscientious in the discharge of its duty, more liberal in giving time, more businesslike in the direction of affairs or more keenly interested in the welfare of this University. No better proof of all this can be offered than the management of building construction under the chairmanship of the Hon. Wm. L. Clements, whose untiring efforts on behalf of his Alma Mater, whose splendid foresight and judgment enriched by a wide experience, no words can express. It is his direction which has made for the straightforward economical solution of the several buildings of recent years.

Possessed of fullest regard for external appearance and a proper appreciation of the importance of the aesthetic, he holds the conviction that it

is of less importance that buildings be monuments as such, than that they serve their purpose well. Through his insistence, extravagance and costliness have been avoided in every instance. Nor is extravagance or the use of costly materials an imperative element in the creation of architectural beauty. To Ruskin's definition of architecture as being "the art which so disposes and adorns edifices raised by man for whatever use that the sight of them may contribute to his mental health, power and pleasure," Mr. Clements would add, that art, which accomplishes all these things without however exceeding the appropriation or bankrupting the owner. Mr. Clements is right. Deliberately to exceed the appropriation in the execution of (especially public) work is a wrong committed against the commonwealth.

Nor need economy in design mean ugliness. Indeed some of the best work artistically is that most restrained because of limited funds. Economy is not responsible where beauty is entirely absent. It is rather the lack of ability or of proper efforts expended on the part of the designer. May I express the hope that the Architect of the Library is not to be charged with either?

The building which it was our privilege to work up involved a most interesting though difficult problem. It had to be designed so that it might be built in two parts, completing one section for temporary occupancy and the other and larger part later. The old book-stack, being of fireproof and otherwise satisfactory construction, was to be saved and made a part of the new structure. The new Library was, therefore, built around the existing stack and in such a manner as to permit of adding not only now to the book-stack space, but in the future should the need arise.

Provision for expansion is of prime importance in the modern library building. Of equal importance is adequate room, light and air for the staff. Too often all effort is expended on the public rooms and the work rooms suffer in space, and light and air so necessary for the best results from the workers and for their health. It has been the particular aim in this building properly to provide for these. Then there are the necessary reading rooms, private study and seminar rooms, all planned to co-ordinate and function properly. It is hoped that all will work out satisfactorily in actual use, and if this prove so, a large share of the credit must go to two men who gave indefatigably of their time, advice and personal effort. I refer to your capable Librarian, Mr. Wm. Warner Bishop and to Dr. John F. Shepard. Mr. Bishop assisted materially in the development of the plans and interior details; Dr. Shepard in the actual construction work and equipment. Since knowing Dr. Shepard, who as you know, is Professor of Psychology, I am firmly convinced that the study of psychology is a very necessary part of the architectural curriculum. Too often well meant efforts on the part of such assistants result in obstruction and interference. Not in this instance, however. The splendid co-operation and helpfulness of these men proved invaluable.

There existed in the construction of the building a remarkable harmony between contractors, the Board, and its representatives. Much praise is due Messrs. Selden and Breck, the general contractors, and their superintendents, McDonald and Clark. The difficulties in construction work

brought about by the World War were innumerable and at times seemed insurmountable. That in spite of all they produced such satisfactory results in workmanship and general execution is much to their credit.

The building, which is of strictly fireproof construction, has a floor area of 125,000 square feet. Its cubical contents are 2,100,000 cubic feet. Its cost including stacks, but not including other equipment, was approximately \$525,009, or 25c per cubic foot. The cost of the plainest sort of factory work today is 25c and over per cubic foot.

Before the day of print, architecture served to express the thoughts of men. These are now recorded in books housed in libraries. Architecture, however, would not be equal to its opportunities today if it failed to express a thought. May the new Library tell the story of a sincere desire on the part of the officers of the University and their Architect to provide for the students and the State a structure which will inspire nobler aspirations, more enlightenment, greater tolerance and increased wisdom among the men and women who will enter its doors.



THE MAIN READING ROOM—LOOKING EAST

THE LIBRARY, DEMOCRACY AND RESEARCH

BY RICHARD ROGERS BOWKER

Mr. President and Regents, Guests of the University, Ladies and Gentlemen, Fellow Students:

I say fellow students, because every man of college education should be a student to the end of his days.

It is an especial pleasure for me to take part in the dedication of this splendid library building, so worthy of this great University—and that for many reasons. But first, I must felicitate Architect Kahn for performing that impossible task of the Scotch congregation who wanted to worship in the old church while the new church was being built and use the material of the old church to build the new.

A chief reason is that, for more than half a century, since my early college days, I have honored the University of Michigan as the pioneer and forefront of free state university education, an institution which has been the exemplar and stimulus for that great chain of state universities stretching from Ohio, through the golden West, to the Golden Gate, which have done so much to lift the West, as it grew, out of the material into the higher life of a community, and has reacted from the one into the other, until the material prosperity of the States of the West has been as much benefited as its higher life. Our Puritan fathers had scarcely taken breath after landing at Salem and Boston, before they began to do something for education, and in the early beginnings started Harvard College with its collection of books and its few students. As Holmes says:

“Lord, how the Seniors knocked about
The Freshman class of one!”

Their great-great-grandchildren, making western New York a first stepping-stone and leaping thence into Michigan, began in the same way to lay the foundations of education for the great West. It is interesting to note that one of their first endeavors, when the territory was under organization, was to prophesy and provide for that remarkable system of free and higher education which is exemplified here today, when they established that Catholepistemiad!—it is almost sacrilege for an outsider to pronounce that classic and hallowed name!—which was the forerunner of the University and of the great free school system of Michigan. And it is more remarkable that the beginnings were made by a Catholic priest and a Presbyterian dominie for a non-sectarian institution, which did not serve religion the less because it had not to do with religious sects. One can imagine each bringing his favorite book to begin the library, the priest his Thomas à Kempis, the dominie his John Calvin, and the two living together in happy harmony. And now the University of Michigan, though two hundred years behind hand in its start, rivals with its 7,500 students and 500 teaching staff, both in quantity and quality of higher education and in research, its earlier progenitor.

I have an earlier association with Michigan which may interest you. I remember my father telling that, when he was a young man, he made a journey into Michigan to inspect certain forest lands which my grandfather had purchased, and he told me that, walking with an Indian guide over the Indian trails in the unbroken forest, forty miles in one day, he tasted the most toothsome meal of his life, because eaten with hunger sauce, when a missionary at the cross trails regaled him out of his starvation rations, with a pie of green tomatoes with potato crust! That is indeed a contrast of Michigan of seventy-five years ago and Michigan today.

I have another reason for rejoicing at being with you—that, as a graduate of that free and democratic college, the first of the municipal free colleges, the College of the City of New York, I have some right to count myself a fellow alumnus with you. We were also a pioneer, not only in the municipal college field, for I think we can boast of the first chair of English in any American college, and, as a child of West Point, our college had a most comprehensive mathematics curriculum, extending through Bartlett's Spherical Astronomy to the equation of the universe, before Professor Einstein involved it in the fourth dimension. Before the public school system had come into full vigor and favor, we were taunted, as wards of the city, as you are wards of the state, with being "charity scholars," "educational paupers," but a lady very near to me has suggested that it is in the endowed institutions, dependent upon the gifts of rich men, that this term applies, rather than to those supported by the people through taxation. We took our revenge against the newspaper which opposed our institution on this ground by educating one of its chief editors of today. Also, we were told that as, like you, we were without dormitories for our boys and came from all classes of society, we could have no college life. But I have found my most intimate friendships, the most useful associations of my life, among my fellow collegians, and one group has maintained for a full half century a college camp at Lake George, in which men, stretching sixty years apart in college class, have from year to year renewed their youth and fealty together. Such institutions as ours and yours are the very bulwark of an educated democracy, and I know of no greater treason to democracy and education than that within such institutions there should grow up in any group of men a feeling of social snobbishness, of class distinction, of race prejudice, or of any distinction which tends to separate instead of to unify our people.

Lastly, I am glad to be here today, not as a librarian—because I have not that honor—but as a library trustee, and one always interested in library development, to congratulate you on this noble building, in which harmony of architecture has been supplemented by harmony of effort. I am glad to have met here many of these gentlemen who have devoted themselves to this work on the library building, which will house, in the great future, as President Hutchins has said, "the heart of the University." The library and the school together make the safeguards of America; and here in Michigan you are setting, as you always have set, a noble example to your sister states. It is, therefore, a high privilege that I may speak to you today on the library in its relations to democracy and to research.

We are confronted in these days, Mr. President, by a state of mind which denies thrift, which denies education, which denies democracy. Even gravitation is denied if the twelve men who are supposed to understand Professor Einstein's theory confirm the newspaper view of what that means. Apparently this theory was proscribed by Lowell, when speaking of politics, he made Incese D. O'Phace say:

"Everythin' 's nothin' except by position."

Goethe's Mephistopheles, the spirit of evil, said of himself, "I am the spirit that denies!" In these days educated men and women have to combat that spirit. If Karl Marx is right, and capital—that is, saved labor—is not worthy of reward, and the man without a hoe can do as much work and as good work as the man with a hoe, and he as the man with two hoes, one to be sharpened while the other is dulled, and he the man with a plough and a cultivator to break and make ready the land, and he as the man who uses the most modern facilities of the gang-plow and the Ford tractor, another product of the State of Michigan, then what is the use of saving, and why thrift! If a man without learning is as good as the man who has devoted much of his years to learning, and an unskilled worker as good as a skilled worker, why education! If one man is as good as another—if not, in his own view, better—in a democracy, why then a democracy! These are questions which confront and challenge educated men in these trying days. But that same Mephistopheles, in the great drama of Goethe—almost the greatest of dramas—in which Goethe, in the Faust legend, enshrines the human nature of Shakespeare in the theocratic setting of Dante and Milton, that Mephistopheles at last confesses himself:

"Part of that power not understood,

Which always wills the bad, and always works the good."

This is the hope before educated men that out of any chaos, out of any darkness, there will shine the dawning light of a new day. But the very phrase suggests that we cannot, without work, accomplish the task that is set to educated men. Things are not accomplished except by work, and to meet the errors and evils of the day, educated men must set themselves to work together. And that means that in a democracy the leaders must lead, that the educated men must have their place in the front ranks, and we have seen in Russia that even under Soviet government, the men who have authority bring back to their desks the men of learning and experience. And no democracy can last which has not leadership within its ranks and does not recognize that leadership.

What then is democracy? I will not attempt a fresh definition, nor even, in the phrase of Sir Thomas Browne, "hazard a wide conclusion." Perhaps we know better what it is not than what it is. But I may quote a fine declaration from a later Holmes: "Democracy is fellowship, the love of free men one for another in a community of experience and service." I think we may, in fact, still say that democracy is yet in Professor Shepard's jurisdiction as a matter of experimental psychology. It is not an oligarchy, or rule of the few, unless we give over leadership to the political bosses. It is not a kakocracy, or rule of evil, unless we take the Tanmany

democracy, which we boast in New York, as an example. It is the opposite of autocracy, whether of a self-crowned czar or a self-selected Soviet, although Andrew Jackson's day, tomorrow, may remind us that an elected president may, in times of stress, be as autocratic as a czar. It is not a government of one class over another, whether that class be the intellectual, or the working class, or the red-hued class that would label the government "Upside down with care." Rightly, a democracy should also be an aristocracy, combining the virtues of both, and looking, in the sense of the Greek word, to the best men at once to lead and to serve the people. That is the true structure of the democratic state, that the leaders lead, in a leadership based always upon the thought, not of ambition, but of service. Otherwise, our democracy is a toppling thing, not on a broad base that will stand.



THE DESK—MAIN READING ROOM

The library represents democracy in a very thorough sense. I mean the American library of today, the public library, and the university library, which are twin sisters. There were times when librarianship was the work of a book-keeper, and one of the Harvard legends is of Librarian Sibley, a generation ago, who was seen locking the doors of the University library, old Gore Hall, with what to him was the happy word that "only two books were 'out, and he was going to Professor Agassiz's house to get hold of these." That is not the spirit of the library of today, as this great building testifies. The motto of the American Library Association, given it by Melvil Dewey, is: "The best books for the most people at the least cost"; or, as a latter amendment has it: "at any cost." Its spirit is one of service to the whole people, from childhood to the end. But the modern spirit has had its small beginnings, as most things have had. There was a motherly librarian in Pawtucket, Rhode Island, whom we used to call Mother Saund-

ers, who felt that the little people ought to have a chance in the library, and felt that the grown people ought to come in and have a look at the books, not in the old way, as in Europe and South America, where there is a little window, through which the librarian pokes his head and you ask for a book, but on the open shelves. So Mother Saunders, seeing the children peek around the corner of the door, got some tables and sawed off the legs, and some little chairs, and asked the children to come in. And then she made the door wide open for the grown folks to come in and look for themselves at the books on the shelves. For a while she was a missionary alone. After a time others began to see that she was right, and her ideas were the germs of many of the library practices of today.

Today, as I have said, the library exemplifies, in the largest way, the true democratic spirit. It is unafraid of freedom. It invites people to come to what it has to offer.

In the last fifty years or less, in response to that thought, there has been growing up in this country a library profession and a national library organization which enshrines this democratic principle. The American Library Association itself is one the youngest of the professional organizations, and perhaps it did not wake up to its own importance until the war came, when it enlarged its work, and did the great service to our boys abroad and on the seas of which no doubt you know, because you contributed largely to that work. During the war year we were honored in the American Library Association by the presidency of your librarian, Mr. Bishop, and it is largely to his vigor, and tact and ability that the war work was so successfully done. And now the Association has come out with the country from the World War, and is asking itself what it can do in time of peace, because it feels, as does the whole country, that the energy of the war will be thrown away in large measure unless it is applied promptly and hopefully and patriotically to the work of peace. Therefore, in the past week, in Chicago, there has been a special national conference of that Association, at which it was determined to go forward with an enlarged program, in which doubtless, you will do your part. I will not undertake to present to you the features of that program, but I will mention one feature which shows how largely the work of this country is extending out toward the helping of the other countries who have suffered so much by the war.

One of the features of the work will be the continuance in Paris of the American library developed there during the war for our soldier boys, which a Paris committee, chiefly of Americans, has undertaken to make permanent. The chief of that committee is Mr. Seeger, representing large American interests in France, whose son, Alan Seeger, you perhaps knows as one of the martyrs of the war. There came from his books a royalty amounting to 50,000 francs, or ten thousand dollars, and the father and mother, desiring to do something in memory of the boy, have made that the first contribution toward the permanence of the American library in Paris. That library will not only be a model in Paris to show what the American library is doing, but it will be a headquarters from which the American library may radiate its influence to those countries which are looking to us for guidance. It seems to me that the duty of America is to feed and free the world; and the call is not only to appease the physical hunger, but to

answer to the moral and intellectual needs, especially of the new countries which have developed from the war. Already Czecho-Slovakia, whose president married an American wife and is almost an American himself, has passed a general library law, modelled on the American scheme, which will provide a library system for the whole country. And here and there in other countries there is the same desire to know what America is doing, and to follow the American spirit. I think you will agreed that this in itself is a worthy effort for the American Library Association to undertake.

Thus the public library system represents in a high degree the spirit of democracy. But the university library goes still further; it represents not only democracy, but leadership within democracy, the intellectual aristocracy which is as necessary to democracy as any other element. We think



MAIN READING ROOM—LOOKING EAST

of research as rather a matter high in the air, but there is, after all, nothing more practical; and today the organization of the American library system is thoroughly adapted to this idea of research. One of the most important factors in the war, or rather, in the settlement of the war, was the Inquiry carried on under the auspices of Mr. House, but practically headed by Dr. Mezies, the president of the College of the City of New York. It was called the Inquiry and it was a practical piece of research in which all the librarians of the country, and scholars and investigators generally, did wholeheartedly co-operate. We then learned of the defects of American libraries, because numerous books and documents desired for the Inquiry could not be found here, and, of course, could not be had from abroad in the unsettled condition of affairs there. Nevertheless, the Inquiry was completed to the extent that in many scores of Americans filing cabinets there went with the President to Paris information on every possible point of

European relationship which was likely to bear upon the question of the peace settlement. The lesson which has come out of that has been to incite all American libraries to equip themselves better than in the past with the materials for research. Because, as Mr. Kahn has said, while architecture is the expression of thought, the expression of thought has been in larger measure recorded in our libraries, for in the library, in particular, must be sought the instruments of research. Library development has indeed progressed to the point where any student in any library can avail himself of the whole library machinery, that is, any student in this company may come to Librarian Bishop, and he will gladly obtain for him any book which can be had in this country—even from the Library of Congress itself—for which he has real need. This is an example of a national organization which, I think you will agree, is well worth while.

I have said that we think often of research as in the upper air. But nothing could be more utilitarian from the material point of view alone, than academic research. It is unnecessary to recount to you what has been done by the agricultural experiment stations and colleges, particularly in the western farming states, to make farming more productive and more profitable. Fifty per cent, and in some cases, one hundred per cent, have been added to farm productivity. It was not many years ago that the agricultural experiment authorities of the United States co-operated with the Canadian authorities in research which developed a wheat that extended the Canadian wheat belt fifty miles to the north, and when you think what that means in feeding a starving world, you can see, without question, what research can practically mean. The Panama Canal was made possible by research. New Orleans had burned up millions of dollars worth of goods in the vain attempt to rid itself, year after year, of the yellow fever scourge, which it was thought came from infection through clothing. It was research which discovered the pestiferous mosquito, which has killed off hundreds of thousands of people, and through Colonel Waring's work in the harbor of Havana and Dr. Gorgas' work at Panama, the Isthmus was made possible to live in, and the Canal, which had been deferred from generation to generation, was accomplished. So, at every point, if we follow out research, we find that sooner or later it results in material prosperity as well. We think of research as one thing and invention as another. But as we analyze the words, they mean, after all, finding out, and the inventor is like the research specialist. I suppose you think of Mr. Edison, who began his work as a railroad newsboy on the Port Huron branch in this state—in his popular name as the "Wizard of Electricity"—as a man who does not work, but simply sees things and grasps them and makes them real. But if you work with Edison, as I have had occasion to do, you would be astonished to find the character of his mind and the material he employs. He has a laboratory and a library which constitute one of the remarkable equipments of this country—a library in which he has had brought together for him all the works which can be obtained on the theory of electricity and the practical branches of electricity with which he has to do, and a laboratory filled with substances, chemical or other, which he uses in his numberless experiments. His practice is to go through one try-out after another, with the patience of research.

As one works with him, one can almost feel his mind going out, now this way, now that, like the antennae of an insect. You come back to the same quality of research in the inventor as in the student. Oftentimes it is the man without the advantage of education who most thoroughly recognizes its advantages. I remember before Grover Cleveland took the presidency, he said, after the election, almost pathetically: "How I wish I could get away for four months and be a student of economics to fit myself better for this great work which I have to undertake." And often you will find the best testimony to the university's value in men who have suffered for lack of university education. It is very gratifying to note how largely democratic has been the work of this University; to know that the head carpenter and the head painter of the University have sent their sons and their daughters into the University, so that the second generation will come into their life-work with the added advantage of University training.

But after all, Mr. President, we have to gage work by results. What is the aim of university teaching? By what result is it to be tested? A simple answer is the test of Service. The service of democracy is a service for the whole people. It is not, it cannot be, a service of personal ambition. Most of the great aggregations of wealth are in the hands, not of college men, but of men who have worked out in a selfish way their own ends. The mere aggregation of wealth is not a joy, but oftentimes a burden; the mere making of money is playing the game of life in a poor and sordid sort of way, which gives no such satisfaction as the sense of service. There is at least one person in your University faculty, as I have reason to know—and I suspect there are many more—whose genius for research and whose energizing common sense have opened to him opportunities for money remuneration vastly beyond what the University gives or can ever give. But he is not willing to give himself to the selfish grinding of the money mill in place of the unselfish service which he joys to do. To recur again to the great drama of Goethe—whose final lesson has been little known to us because we have associated it chiefly with the operatic version of the first part—as we follow Faust, still in the toils of Mephistopheles, through the curious phantasies of the second part, we find him given everything that the human heart can desire. He has known love, he has wealth, he has power, but nothing has satisfied him. He has never been able to say to the passing moment, "Ah, still delay—thou art so fair." But in the later scenes of the second part, we see him doing service to the people of his land, draining its swamps, making the land productive, making the people prosperous and happy, and, as he looks over that smiling land, at last he says, "Ah, still delay—thou art so fair." Thus satisfied, he dies, and Mephistopheles claims his victim. But in this service Faust has redeemed his soul. The heavenly host beat off the spirit of evil, and Mephistopheles is cheated of his prey.

That illustrates our service to democracy, to research, through the help of the agencies by which we of this twentieth century are blessed. The one aim should be to make ourselves, each individual life, of service to the whole people, so that every moment of our passing existence may be one which we might wish to stay, that we might do the greater service for the people of whom each is a part.

THE OPENING EXHIBIT AT THE NEW LIBRARY

One of the special features which marked the opening of the new Library was an exhibit of exceedingly rare books and manuscripts from the *collections of Regent William L. Clements, '82, of Bay City, and Mr. Wilfrid M. Voynich of London and New York. These were shown for three days in the special cases which line the walls of the main entrance hallway.

AMERICANA

The exhibit of books from Mr. Clements' library contained about 75 important source books of the discovery and colonization period of American history. The titles were chosen at random with the idea of illustrating in a very general way that period of history, and of showing what source books are.

The exhibit was arranged chronologically, beginning with Mela's *Cosmographi Geographia*, printed in Venice in 1482 and containing the map, which was an important factor in the charts of Columbus. Next came Columbus' letter to Ferdinand and Isabella's secretary, Sanchez, printed in Rome in 1493, describing in his own words what he saw on his first voyage. This tract is one of the rarest in all Americana. Almost all of the well-known discoverers were represented: there was the first printed account of Magellan's voyage (1523), the first edition of the Italian translation of Cortes' second and third letters (1524), Cabeza de Vaca's account of his expedition across the Gulf States (1555), Cartier's discovery of "Nouvelle France," or Canada (1580), Laudonniere's narrative of the French expeditions to Florida, and many others. Among the earliest collections of voyages were the two editions of Peter Martyr, printed in 1532 and 1534, and Eden's *Decades of the Newe Worlde*, the first collection of voyages printed in English (1555). The *piece de resistance* of the exhibit, and of Mr. Clements' library, was Harriot's *Virginia*. This little book is as important as it is rare, and as beautiful as it is important. It affords at this day more authentic materials for the early history of the Atlantic Coast of North America, from the River May to the Chesapeake, than any other portion of the new world, Spanish or English, can boast of.

Other books of especial interest were Captain John Smith's *A True Relation* (1608), the earliest work relating to Jamestown, and his *A Description of New England* (1616); Winslow's *Good Nevves from New England* (1624), the first source of information concerning the colony at Plymouth; Francis Drake's *The World Encompassed* (1628); *A Relation of Maryland* (1635), the second publication relating to Lord Baltimore' plan-

*Mr. Clements has formally agreed with the Regents to present his entire Library of Americana to the University and to erect a separate library building to house it. See THE MICHIGAN ALUMNUS, March, 1920.

tation; Mercator's Atlas (1635-37), the greatest atlas of its time; Wood's New England's Prospect (1639), the first detailed account of Massachusetts; Bullock's Virginia Impartially Examined (1649); Gardyner's A Description of the New World (1651), the first book in English containing a description of New York; Du Creux's *Historiae Canadensis* (1664), a history composed from the yearly relations of the Jesuits; Frobisher's *Historia Navigationes* (1675); Penn's Some Account of the Province of Pennsylvania (1681), the first of the tracts relating to Pennsylvania; Hennepin's *Description de la Louisiane* (1683), which deals with the discovery by the French Jesuits of that part of the United States once called Louisiana; Le Clerq's *Premier Etablissement de la Foy* (1691); and Mather's *Magnalia Christi Americana*, the most famous book produced by any American during Colonial times, printed in London in 1702.

ILLUMINATED MANUSCRIPTS

The books from the Voynich collection which Mr. Voynich brought to Ann Arbor at his own expense, were illuminated manuscripts of the Middle Ages and Renaissance Period, the like of which have never been seen in America.

Illuminated manuscripts of the fifteenth century are not uncommon in European and American libraries and museums. They are, however, ordinarily poorly executed pieces of an ordinary sort. The collection which Mr. Voynich showed was composed of selected manuscripts with very remarkable paintings and decorations, dating from the eleventh to the sixteenth centuries, and exhibiting the English, Flemish, French, Spanish, and Italian styles of painting, decorating, and writing. Many of them were from celebrated libraries, one having come from the library of Lorenzo di Medici, the celebrated Duke of Florence and father of Catherine di Medici; one from the private library of Pope Pius II, better known perhaps as the great Renaissance scholar Aeneas Sylvius Piccolomini; still others belonged to celebrated monastic libraries, or to collectors of a later date. A number of the illuminated Books of Hours and Prayer Books were known to have been executed for princes or very wealthy merchants. The collection was particularly rich in devotional books, which were, of course, ordinarily chosen for illumination and adornment with miniatures. There were a number of Psalters, Breviaries, Prayer Books, and Books of Hours, as well as one Pontifical and a number of Latin Bibles, including Bibles from Spain and England.

The illuminations are of extraordinary value for the history of painting: they show also various schools of decoration as distinguished from miniature painting. The collection was particularly strong in English work, which is not nearly so common in the specimens preserved in this country as the work from Flanders and France, while Spanish specimens are almost unknown. Spanish illuminated manuscripts of the early period are

extremely rare, but in this collection was a Latin Bible written and ornamented in Spain in the thirteenth century.

One of the manuscripts showed in a very unusual fashion the method of decorating parchment books in the late Middle Ages. The decorations of this manuscript are not completed, and there are a number of pages in which the design was sketched with a silver point, with only the goldsmith's work completed. The application of gold and silver, which forms so large and beautiful a part of the decoration of these manuscripts, was not done by the scribe or by the artist who did the colour work and the painting, but was done by a goldsmith or silversmith, who applied the gold to the vellum by a secret process now lost to us, and afterwards polished it very highly, usually with agate or some other semi-precious stone. Later the painter used his pigments in making borders or actual pictures. There are few manuscripts in existence which show this process in its incomplete state.

Among the most interesting of the manuscripts is one coming from the Cistercian Monastery near Laon, in France (a town absolutely destroyed in the recent fighting) which shows unmistakable evidence of the use of a block or die to print the initial letters in red ink. When it is remembered that the first book printed with movable types was made about 1450, the importance of this discovery, which shows the use of the die for printing at least two hundred years prior to the use of types, is at once seen. The evidence is unmistakable, and completely satisfies scholars who have seen the book, that the initials were not only printed, but that the work is fully as early as the middle of the thirteenth century. It is known that experiments in the use of dies were made long before Gutenberg invented printing, but until this manuscript was discovered by Mr. Voynich nobody supposed that they were made so very early.

Three manuscripts of extraordinary interest, shown here in 1915 by Mr. Voynich, were exhibited a second time. One of these was a great work by Marcanova on "The Archaeology of Italy." It shows drawings of a number of buildings dating from Roman times, which have since disappeared, and others which have been so changed by restoration since the date of this manuscript that their original form is lost to us. The manuscript is full of drawings by the celebrated Renaissance artist Finiguerra, and is of the greatest value to students of architecture and of classical archaeology.

One of this group also was the original manuscript of *The Art of War by Land and Sea*, which was written by Sigismund Malatesta and his friend, Valturio. Malatesta was Duke of Rimini, and had a number of copies of this manuscript made for various kings and princes of Europe. It was finished about 1460 before anyone had printed a book in Italy, and was used as a copy for printing the book at Verona, in 1470. The book was printed without the knowledge or consent of the author, and indeed by the authority of the Venetian Republic, which was at war with the Duke of Rimini. This copy was the one used by the printers. The first book printed in Italy was in 1465, and this of 1470, which was shown with the

manuscript, is consequently among the first books printed south of the Alps. The volume contains a drawing by Andrea Mantegna, a great Renaissance painter.

By far the most important manuscript ever brought to America, however, is the extraordinary cipher manuscript of a work on *The Secrets of Nature*, profusely illustrated, and unquestionably dating from the thirteenth century. This manuscript has been the subject of extended study by various scholars, and it seems likely that Professor Newbold, of the University of Pennsylvania, has succeeded in finding the key to the cipher. It is probably the work of Roger Bacon, and may even be in his handwriting. It seems impossible that the various drawings in the manuscript could have been produced without the aid of a microscope; and if the text is deciphered, it may show that the microscope was invented by Bacon centuries before its later discovery and use.



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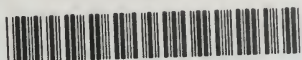
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